		Pushing the Env	
		2008 Mathema	
		Core Curriculum Conte	nt Standards
New Jersey Mathem	atics		
Grade 5			
Activity/Lesson	State	Standards	
			Create and use representations to organize,
Types of Engines (record, and communicate mathematical ideas:
pgs. 11-23)	NJ	MA.5.4.5 E.1.c	Symbolic representations (e.g., a formula)
			Create and use representations to organize,
Chemistry (pgs. 25-			record, and communicate mathematical ideas:
41)	NJ	MA.5.4.5 E.1.c	Symbolic representations (e.g., a formula)
Dhysica and Math		MA 5 4 2 5	Lies number contenses to model cituations.
Physics and Math	NI I	MA.5.4.3.5	Use number sentences to model situations:
(pgs. 43-63)	NJ	C.1.a	Using variables to represent unknown quantities
			Draw freehand sketches of graphs that model
			real phenomena and use such graphs to predict
			and interpret events: Rates of change (e.g.,
Physics and Math		MA.5.4.3.5	when is plant growing slowly/rapidly, when is
(pgs. 43-63)	NJ	C.2.b	temperature dropping most rapidly/slowly)
(pgs. 45-05)	INU	0.2.0	Create and use representations to organize,
Physics and Math			record, and communicate mathematical ideas:
(pgs. 43-63)	NJ	MA.5.4.5 E.1.c	Symbolic representations (e.g., a formula)
(pgs. 45-05)	INU	WA.5.4.5 E. 1.C	Create and use representations to organize,
Rocket Activity (pgs.			record, and communicate mathematical ideas:
69-75)	NJ	MA.5.4.5 E.1.c	Symbolic representations (e.g., a formula)
09-7-0)	110	IVIA.3.4.3 L.1.0	Oymbolic representations (e.g., a formula)
		Pushing the Env	
		2008 Mathema	
		Core Curriculum Conte	nt Standards
New Jersey Mathem	atics		
Grade 6			
Activity/Lesson	State	Standards	
			Describe the general behavior of functions given
T (F : /			by formulas or verbal rules (e.g., graph to
Types of Engines (determine whether increasing or decreasing,
pgs. 11-23)	NJ	MA.6.4.3.6 B.1	linear or not).
Toward of Freedrice (Create and use representations to organize,
Types of Engines (NI I	NAA 0 4 5 5 4	record, and communicate mathematical ideas:
pgs. 11-23)	NJ	MA.6.4.5 E.1.c	Symbolic representations (e.g., a formula)
			Describe the general behavior of functions given
Observation of the Company of the Co			by formulas or verbal rules (e.g., graph to
Chemistry (pgs. 25-	NI I	MA C 4 O C D 4	determine whether increasing or decreasing,
41)	NJ	MA.6.4.3.6 B.1	linear or not).
Chamiatry (nea 25			Create and use representations to organize,
Chemistry (pgs. 25-	NI I		record, and communicate mathematical ideas:
Physics and Math	NJ	MA.6.4.5 E.1.c	Symbolic representations (e.g., a formula)
Physics and Math	NI I	MAGAAGAA	Explore the use of ratios and proportions in a
(pgs. 43-63)	NJ	MA.6.4.1.6 A.4	variety of situations.

Physics and Math (pgs. 43-63)	NJ	MA 6 4 3 6 A 1 a	Recognize, describe, extend, and create patterns involving whole numbers and understand descriptions using tables, verbal rules, simple equations, and graphs
Physics and Math (pgs. 43-63)	NJ	MA.6.4.3.6 B.1	Describe the general behavior of functions given by formulas or verbal rules (e.g., graph to determine whether increasing or decreasing, linear or not).
Physics and Math (pgs. 43-63)	NJ	MA.6.4.3.6 C.1.a	Use number sentences to model situations: Using variables to represent unknown quantities
Physics and Math (pgs. 43-63)	NJ	MA.6.4.3.6 C.2.c	Draw freehand sketches of graphs that model real phenomena and use such graphs to predict and interpret events: Rates of change (e.g., when is plant growing slowly/rapidly, when is temperature dropping most rapidly/slowly)
Physics and Math (pgs. 43-63)	NJ	MA.6.4.5 E.1.c	Create and use representations to organize, record, and communicate mathematical ideas: Symbolic representations (e.g., a formula)
Rocket Activity (pgs. 69-75)	NJ	MA.6.4.3.6 B.1	Describe the general behavior of functions given by formulas or verbal rules (e.g., graph to determine whether increasing or decreasing, linear or not).
Rocket Activity (pgs. 69-75)	NJ	MA.6.4.5 E.1.c	Create and use representations to organize, record, and communicate mathematical ideas: Symbolic representations (e.g., a formula)
		Pushing the Enve	elope
		2008 Mathemat	
	Co	ore Curriculum Conten	t Standards
New Jersey Mathem	atics		
Grade 7			
Activity/Lesson	State	Standards	
Types of Engines (pgs. 11-23)	NJ	MA.7.4.3.7 D.3.b	Create, evaluate, and simplify algebraic expressions involving variables including substitution of a number for a variable
Types of Engines (pgs. 11-23)	NJ	MA.7.4.5 E.1.c	Create and use representations to organize, record, and communicate mathematical ideas: Symbolic representations (e.g., a formula)
Chemistry (pgs. 25-41)	NJ	MA.7.4.3.7 D.3.b	Create, evaluate, and simplify algebraic expressions involving variables including substitution of a number for a variable
Chemistry (pgs. 25-41)	NJ	MA.7.4.5 E.1.c	Create and use representations to organize, record, and communicate mathematical ideas: Symbolic representations (e.g., a formula)
Physics and Math (pgs. 43-63)	NJ	MA.7.4.1.7 A.3	Understand and use ratios, proportions, and percents (including percents greater than 100 and less than 1) in a variety of situations.
Physics and Math (pgs. 43-63) Physics and Math	NJ	MA.7.4.2.7 A.2.a	Understand and apply the concept of similarity by using proportions to find missing measures Descriptions using tables, verbal and symbolic
(pgs. 43-63)	NJ	MA.7.4.3.7 A.1.a	rules, graphs, simple equations or expressions

			Create, evaluate, and simplify algebraic
Physics and Math		MA.7.4.3.7	expressions involving variables including
(pgs. 43-63)	NJ	D.3.b	substitution of a number for a variable
			Create and use representations to organize,
Physics and Math			record, and communicate mathematical ideas:
(pgs. 43-63)	NJ	MA.7.4.5 E.1.c	Symbolic representations (e.g., a formula)
			Create and use representations to organize,
Rocket Activity (pgs.			record, and communicate mathematical ideas:
69-75)	NJ	MA.7.4.5 E.1.c	Symbolic representations (e.g., a formula)
		Pushing the Enve	None
		2008 Mathemat	
	(Core Curriculum Conten	
New Jersey Mathem	atics		
Grade 8			
Activity/Lesson	State	Standards	
			Create, evaluate, and simplify algebraic
Types of Engines (MA.8.4.3.8	expressions involving variables including
pgs. 11-23)	NJ	D.4.c	substitution of a number for a variable
			Create and use representations to organize,
Types of Engines (record, and communicate mathematical ideas:
pgs. 11-23)	NJ	MA.8.4.5 E.1.c	Symbolic representations (e.g., a formula)
			Solve problems that involve compound
			measurement units, such as speed (miles per
			hour), air pressure (pounds per square inch),
Chemistry (pgs. 25-			and population density (persons per square
41)	NJ	MA.8.4.2.8 D.6	mile).
,			Create, evaluate, and simplify algebraic
Chemistry (pgs. 25-		MA.8.4.3.8	expressions involving variables including
41)	NJ	D.4.c	substitution of a number for a variable
			Create and use representations to organize,
Chemistry (pgs. 25-			record, and communicate mathematical ideas:
41)	NJ	MA.8.4.5 E.1.c	Symbolic representations (e.g., a formula)
,	1.10		Understand and use ratios, rates, proportions,
Physics and Math			and percents (including percents greater than
(pgs. 43-63)	NJ	MA.8.4.1.8 A.3	100 and less than 1) in a variety of situations.
Physics and Math	110	100, 00, 11, 110, 110	Understand and apply the concept of similarity
(pgs. 43-63)	NJ	MA 8 4 2 8 A 4 a	by using proportions to find missing measures
Physics and Math	140	W/ 1.0.4.2.0 / 1.4.a	Descriptions using tables, verbal and symbolic
(pgs. 43-63)	NJ	MA 8 4 3 8 A 1 a	rules, graphs, simple equations or expressions
(pgs. 40 00)	140	W// 1.0.4.0.0 / 1.1.d	Recognize and describe the difference between
Physics and Math			linear and exponential growth, using tables,
(pgs. 43-63)	NJ	MA.8.4.3.8 B.2	graphs, and equations.
(pgs. 40-00)	INU	IVIA.0.4.3.0 D.Z	Create, evaluate, and simplify algebraic
Physics and Math		MA.8.4.3.8	
	NJ	I	expressions involving variables including
(pgs. 43-63)	INJ	D.4.c	substitution of a number for a variable
Physics and Math	NI I	NAA O 4 4 0 D 4	Interpret probabilities as ratios, percents, and
(pgs. 43-63)	NJ	MA.8.4.4.8 B.1	decimals.
Discosion are d NA-41-			Create and use representations to organize,
Physics and Math	N	NAA C 4 5 5 4	record, and communicate mathematical ideas:
(pgs. 43-63)	NJ	MA.8.4.5 E.1.c	Symbolic representations (e.g., a formula)

			0
D 1 (A (' ') (Create and use representations to organize,
Rocket Activity (pgs.			record, and communicate mathematical ideas:
69-75)	NJ	MA.8.4.5 E.1.c	Symbolic representations (e.g., a formula)
		Pushing the Enve	
		2008 Mathemat	
Name Is no and Madhama		Core Curriculum Conter	nt Standards
New Jersey Mathem Grade 12	atics		
	State	Standards	
Activity/Lesson	State	Standards	Use models and algebraic formulas to represent
Types of Engines (MA.12.4.3.12	and analyze sequences and series: Explicit
pgs. 11-23)	NJ	A.1.1	formulas for nth terms
pgs. 11-25)	140	Α. 1. 1	Use models and algebraic formulas to represent
Types of Engines (MA.12.4.3.12	and analyze sequences and series: Sums of
pgs. 11-23)	NJ	A.1.2	finite arithmetic series
pgs. 11 20)	110	71.1.2	Use models and algebraic formulas to represent
Types of Engines (MA.12.4.3.12	and analyze sequences and series: Sums of
pgs. 11-23)	NJ	A.1.3	finite and infinite geometric series
pgo: :: =0)	1.0	70	Create and use representations to organize,
Types of Engines (record, and communicate mathematical ideas:
pgs. 11-23)	NJ	MA.12.4.5 E.1.3	Symbolic representations (e.g., a formula)
-7			Finding the interval in which a computed
Chemistry (pgs. 25-		MA.12.4.2.12	measure (e.g., area or volume) lies, given the
41)	NJ	D.2.2	degree of precision of linear measurements
,			Finding which shape has minimal (or maximal)
			area, perimeter, volume, or surface area under
			given conditions using graphing calculators,
Chemistry (pgs. 25-		MA.12.4.2.12	dynamic geometric software, and/or
41)	NJ	E.2.2	spreadsheets
			Use a variety of strategies to determine
			perimeter and area of plane figures and surface
Chemistry (pgs. 25-		MA.12.4.2.12	area and volume of 3D figures: Estimation of
41)	NJ	E.2.3	area, perimeter, volume, and surface area
			Use models and algebraic formulas to represent
Chemistry (pgs. 25-		MA.12.4.3.12	and analyze sequences and series: Explicit
41)	NJ	A.1.1	formulas for nth terms
			Use models and algebraic formulas to represent
Chemistry (pgs. 25-		MA.12.4.3.12	and analyze sequences and series: Sums of
41)	NJ	A.1.2	finite arithmetic series
Ob		MA 40 4 0 40	Use models and algebraic formulas to represent
Chemistry (pgs. 25-	N. 1	MA.12.4.3.12	and analyze sequences and series: Sums of
41)	NJ	A.1.3	finite and infinite geometric series
Chamiatry (nas. 25			Create and use representations to organize,
Chemistry (pgs. 25-	NJ	MA 12 4 5 E 1 2	record, and communicate mathematical ideas:
41)	INU	IVIM. 12.4.3 E. 1.3	Symbolic representations (e.g., a formula) Use models and algebraic formulas to represent
Physics and Math		MA.12.4.3.12	and analyze sequences and series: Explicit
(pgs. 43-63)	NJ	A.1.1	formulas for nth terms
(pgs. 40-00)	140	/A. 1. 1	Use models and algebraic formulas to represent
Physics and Math		MA.12.4.3.12	and analyze sequences and series: Sums of
(pgs. 43-63)	NJ	A.1.2	finite arithmetic series
(Pg0. 10 00)	. 10	/ t. 1.2	mino antimotio conco

			Use models and algebraic formulas to represent
Physics and Math		MA.12.4.3.12	and analyze sequences and series: Sums of
(pgs. 43-63)	NJ	A.1.3	finite and infinite geometric series
			Understand relations and functions and select,
			convert flexibly among, and use various
Physics and Math		MA.12.4.3.12	representations for them, including equations or
(pgs. 43-63)	NJ	B.1	inequalities, tables, and graphs.
Physics and Math		MA.12.4.3.12	Analyze and explain the general properties and
(pgs. 43-63)	NJ	B.2.9	behavior of functions such as rates of change
			Create and use representations to organize,
Physics and Math			record, and communicate mathematical ideas:
(pgs. 43-63)	NJ	MA.12.4.5 E.1.3	Symbolic representations (e.g., a formula)
			Use models and algebraic formulas to represent
Rocket Activity (pgs.		MA.12.4.3.12	and analyze sequences and series: Explicit
69-75)	NJ	A.1.1	formulas for nth terms
			Use models and algebraic formulas to represent
Rocket Activity (pgs.		MA.12.4.3.12	and analyze sequences and series: Sums of
69-75)	NJ	A.1.2	finite arithmetic series
			Use models and algebraic formulas to represent
Rocket Activity (pgs.		MA.12.4.3.12	and analyze sequences and series: Sums of
69-75)	NJ	A.1.3	finite and infinite geometric series
			Create and use representations to organize,
Rocket Activity (pgs.			record, and communicate mathematical ideas:
69-75)	NJ	MA.12.4.5 E.1.3	Symbolic representations (e.g., a formula)